REVYAKIN, A.A.

AFONIN, K.B.; BURTSEV, K.I.; BYSTROV, S.N.; VINETS, G.B.; VODNEV, G.G.; VORONIN, A.S.; GEVLICH, A.S.; GRYAZNOV, N.S.; GUDIM, A.F.; GUSYATINSKIY, M.A.; DVORIN, S.S.; DIDENKO, V.Ye.; DMITRIYEV, M.M.; DONDE, M.M.; DOROGOBID, G.M.; ZHDANOV, G.I.; ZAGORUL'KO, A.I.; ZELENETSKIY, A.G.; IVASHCHENKO, Ya.N.; KAFTAN, S.I.; KVASHA, A.S.; KIREYEV, A.D.; KLISHEVSKIY, G.S.; KOZYREV, V.P.; KOLOBOV, V.N.; LGALOV, K.I.; LEYTES, V.A.; LERNER, B.Z.; LOBODA, N.S.; LUBINETS, I.A.; MANDRYKIN, I.I.; MUSTAFIN, F.A.; NEMIROVSKIY, N.Kh.; NEFEDOV, V.A.; OBUKHOVSKIY, Ya.M.; PERTSEV, M.A.; PETROV, I.D.; PODOROZHANSKIY, M.O.; POPOV, A.P.; RAK, A.I.; REVYAKIN, A.A.; ROZHKOV, A.P.; ROZENGAUZ, D.A.; SAZONOV, S.A.; SIGALOV, M.B.; STOMAKHIN, Ya.B.; TARASOV, S.A.; FILIPPOV, B.S.; FRIDMAN, N.K.; FRISHBERG, V.D.; KHAR'KOVSKIY, K.V.; KHOLOPTSEV, V.P.; TSAREV, M.N.; TSOGLIN, M.B.; CHERNYY, I.I. CHERTOK, V.T.; SHELKOV, A.K.

Samuil Berisovich Bamme. Koks i khim. no. 6:64 '56. (MLRA 9:10)
(Bamme, Samuil Berisovich, 1910-1956)

SOV/68-59-5-18/25

AUTHORS: Revyakin, A.A., and Tsoglin, M.E.

TITLE: In the Commission GNTK of the Council of Ministers of the USSR, for Coking Raw Materials and Semi-products for the Production of Plastics, Chemical Fibres and other Synthetic Materials (V komissii GNTK soveta ministrov SSSR po koksokhimicheskomu syr'yu i poluproduktam dlya proizvodstva plasticheskikh mass, khimicheskogo volokna i drugikh sinteticheskikh materialov)

PERIODICAL: Koks i khimiya, 1959, Nr 5, pp 53-56 (USSR)

ABSTRACT: The second session of the above Commission took place in December 1958, during which the workers of the coking industry met (for the first time since the reorganisation of the structure of industrial management) with representatives of organisations consuming various products of the coking industry. The problems of planning and construction of chemical plants and pilot plants on coking works, problems of consuming main coking by-products by the chemical industry, increasing the resources and development of production of benzene hydrocarbons, utilisation of technical naphthalene, etc., were considered. A paper on design and construction of

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In the Commission GNTK of the Council of Ministers of the USSR, for Coking Raw Materials and Semi-products for the Production of Plastics, Chemical Fibres and other Synthetic Materials

chemical plants on coking works during 1959-1965 was read by T.Ye. Gimel'shteyn (Giprokoks). N.A. Simulin (Director of the State Institute for the Nitrogen Industry) communicated on the prospects of utilisation of coke oven gas in the chemical industry. Main points: the use of the gas as a source of hydrogen for the production of ammonia (nitrogen as a by-product of oxygen production) with simultaneous separation of ethylene. V.A. Ignatyuk (Chief chemical) industry expert of the Gosplan USSR) reported on perspectives of the utilisation of main coking by-products in the chemical industry.
M.S. Litvinenko (Doctor of Technical Sciences, UKhIN) reported on the development of the production of benzene hydrocarbons and methods of increasing their resources in the coking industry in 1959-1965. I.M. Nosalevich (Candidate of Technical Sciences, UKhIN) reported on the

In the Commission GNTK of the Council of Ministers of the USSR, for Coking Raw Materials and Semi-products for the Production of Plastics, Chemical Fibres and other Synthetic Materials

problem of increasing the output of naphthalene and improvement of its utilisation (as well as naphthalene fraction) in the chemical industry. The third session of the above commission took place in March 1959. The following problems were discussed: main direction of scientific research, production of synthetic ammonia from coke oven gas and technological co-operation in industry. Ya.N. Ivashchenko (Candidate Chemical Science, Scientific Director of VUKhIN) communicated on a number of industrial methods of production of pure ethylene-chlorohydrene, dichloroethane, sulphur free benzene and quinolene developed by the Institute. The Institute is working on the development of method of production of pure pyridine bases. A.P. Terent'yev (Professor, MGU, corresponding member of the Academy of Science of the USSR), reported on the work of the Laboratory for special

In the Commission GNTK of the Council of Ministers of the USSR, for Coking Raw Materials and Semi-products for the Production of Plastics, Chemical Fibres and other Synthetic Materials

organic synthesis on the utilisation of chemical coking products - pyridine, quinolene, indol for the production of dyes, insecticides and stimulants of plant growth. A.P. Shestov (Director of NIOPiK) reported on the work of utilising coking by-products in the production of aniline dyes. N.G. Shorygina (VNIIPM) reported on the insufficient utilisation of coking by-products in the production of plastics and indicated possibilities in this field. In a number of reports from various institutes the research program for 1959-1960 was outlined. (Not enumerated). F.P. Trofimenko gave a detailed report on the possibilities of production of synthetic ammonia on the basis of coke oven gas and nitrogen from the production of oxygen. The commission stressed the unsatisfactory position of the present degree of utilisation of coking by-products and insufficient research effort of institutes and universities in this field. General deficiencies of scientific research works are: absence of economic

In the Commission GNTK of the Council of Ministers of the USSR, for Coking, Raw Materials and Semi-products for the Production of Plastics, Chemical Fibres and other Synthetic Materials

considerations of the problems investigated, slowness in the introduction into the industry of finished work, poor information between the individual research institutions leading to duplication of effort, insufficient utilisation of works' laboratories, etc.

REZNICHENKO, V.A.; BOBROV, V.I.; REVYAKIN, A.V.; SOLOV'YEV, V.I.

Smelting titanium in a DVP-200-500 furnace. Titan i ego splavy no.9:255-263 '63. (MIRA 16:9)
(Titanium--Electrometallurgy)

REVYAKIN, A.V.

Kinetics of titanium oxidation. Titan i ego splavy no.8:175-190 '62. (MIRA 16:1)
(Titanium) (Metallic films)

REVYAKIN, A.V.

Effect of addition alloys on the kinetics of titanium oxidation.
Titan i ego splavy no.8:191-206 '62. (MIRA 16:1)
(Titanium--Metallurgy) (Metallic films)

S/598/62/000/008/004/009
D217/D307

AUTHOR: Revyakin, A.V.

TITLE: The oxidation kinetics of titanium

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Titan i yego splavy. no. 8. Moscow, 1962. Metallurgiya titana, 175 - 190

TEXT: Inadequate experimental accuracy in the investigations carried out by Davies and Birchenall (J. Metals, 877, Oct. 1951) and by Jenkins (J. Inst. Met., 82, 5, 213 - 221, 1954) has resulted in the above authors mistaking parabolic oxidation curves with deflections for linear curves. As a result, these authors have deliberately described the oxidation of Ti below 800°C as obeying the linear law. This has led to an erroneous conclusion regarding the absence of protective properties in the oxide film on Ti. The present author has made a study of the kinetics of the reactions between Ti and O_2, Ti and N_2 and Ti and air, and has proved that the oxidation of Ti obeys the parabolic law

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The oxidation kinetics of titanium S/598/62/000/008/004/009
D217/D307

and that the oxide film formed is protective. This film is however destroyed above 800°C and allows the oxidation process to accelerate. The destruction of the film is due to the formation of TiO or TiN in the lower layers of the scale. At oxygen pressures of above 0.35 mm Hg, diffusion of oxygen through the oxide film determines the rate of oxidation of Ti; the pressure has no bearing on the rate of oxidation. There are 12 figures and 2 tables.

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S/598/62/000/008/005/009
D217/D307

AUTHOR: Revyakin, A.V.

TITLE: Influence of alloy additions on the kinetics of oxidation of titanium

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Titan i yego splavy. no. 8. Moscow, 1962. Metallurgiya titana; 191 - 206

TEXT: The rate of oxidation of metals depends on the properties of their oxide films. On the basis of Wagner's theory of oxidation, the author studied the influence of elements of various valencies on the rate of oxidation of Ti. The elements selected were Mn, Cr, Al, Si and Mo. Mo and Mn exerted little influence on the rate of oxidation of Ti, owing to their relative inability to pass into the scale. The most promising of the elements studied was Si, which, though initially raising the rate of oxidation, subsequently reduced it drastically. In addition, Si reduced the depth of diffusion of O_2 into Ti. Cr increased both

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the rate of oxidation and the depth of diffusion of O_2 into the metal. All alloys formed a scale, the main component of which was rutile. No new phases formed in the scale due to the alloying element. In Ti alloys containing Si and Mn, the layer of TiO is developed to a greater extent than in other alloys. The oxidation of Ti-Cr and Ti-Al alloys obeys Wagner's theory, but the behavior of Ti-Si and Ti-Mo alloys cannot be similarly explained. There are 13 figures and 1 table.

REVYAKIN, A.V. (Moskva)

Diffusion of oxygen in alpha-titanium. Izv.AN SSSR.Otd.tekh.nauk. Met.i topl. no.5:113-116 S-O '61. (MIRA 14:10)
(Titanium—Oxygen content)

S/180/61/000/005/018/018
E021/E180

AUTHOR: Ryvyakin, A.V.

TITLE: Diffusion of oxygen in alpha-titanium

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo, no.5, 1961, 113-116.

TEXT: Samples used for determining the coefficient of diffusion were plates of OT-1 (VT-1) titanium with dimensions of 20 x 20 x 2 mm. They were polished and, immediately prior to the experiments, etched in a 7% solution of hydrofluoric acid in nitric acid for 60 seconds. Oxydation was carried out in a special apparatus in which the sample could be heated to the required temperature (600-900 °C) in a vacuum of 10^{-4} - 10^{-5} mm Hg. The time and temperature of oxydation were strictly determined. Oxydation was carried out by oxygen obtained from the decomposition of potassium permanganate. Since the removal of scale from the sample was possible only at 800 °C and higher, the coefficient of diffusion was determined for the temperatures 800-900 °C. The quantity of oxygen dissolved was calculated from the difference between the total quantity absorbed and the quantity in the scale.

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Diffusion of oxygen in α-titanium S/180/61/000/005/018/018
E021/E180

The activation energy was found to be 35 900 kcal/mol. The temperature relationship of diffusion was expressed by the equation

$$D = 1.80 \times 10^{-3} \exp. (35900/RT)$$

where D is the coefficient of diffusion in α-Ti in cm^2/sec and T is the absolute temperature.
There are 2 figures, 1 table and 8 references: 3 Soviet-bloc and 5 English. The four most recent English language references are:
Ref.1: Alexsander and Pigeon. Kinetics of oxidation of titanium. Canad. J. Research, 1950, (28), 2, 60-72.
Ref.2: Wasilewski and Kehl. Diffusion of nitrogen and oxygen in titanium. J. Inst. Metals, 1954, 83, 3, 94-104.
Ref.4: Davies and Birchenall. Oxidation of titanium. J. Metals, 1951, 877, October.
Ref.5: Bumps, Kessler, Hansen. The titanium-oxygen system. Trans. Amer. Metals, 1953, 45, 1008.

SUBMITTED: March 11, 1961.

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S/598/61/000/006/005/034
D245/D303

AUTHOR: Revyakin, A.V.

TITLE: Study of vacuum separation of a reaction mass

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Titan i yego splavy. no. 6, 1961. Metallotermiya i elektrokhimiya titana, 27 - 37

TEXT: The author divides the process of separating a reaction mass from magnesiothermal reduction of $TiCl_4$ into 4 stages: 1) 0 - 350°C Separation of gases and steam without any reaction with Ti; 2) 350 - 600°C. Separation of a residual amount of steam which oxidizes the Ti; 3) 600 - 900°C. Evaporation of Mg and $MgCl_2$; 4) 900 - 950°C Soaking to eliminate residual Mg and $MgCl_2$. The last 2 stages were particularly studied. Variation of Ti sponge porosity was studied by techniques of liquid impregnation and methods of impregnation with water and acetone are critically examined. Sponge porosity depends on the rate of reduction and the rate of separation depends on reduction conditions, basically on $TiCl_4$ feed rate. To study

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Study of vacuum separation of a ...

this relation, experiments were carried out in a microreactor of construction similar to that of an industrial reactor, with dimensions: 35 mm high and [illegible]0 mm diameter. Weighed portions of up to 50 mg sample were used with 6 - 7 g Mg. After reduction, the reactor was suspended on the spring of a microbalance and heated at 900°C in vacuo. Weight loss was continuously recorded by a microcathetometer. A 30-fold variation of $TiCl_4$ feed rate was used much wider than in industrial practic[illegible], so that the porosity of the sponge also varied within wide limits. The results of the tests showed that $MgCl_2 \cdot H_2O$ during separation decomposes at temperatures at which the liberated moisture oxidizes Ti. The principal process of vacuum separation is a simple one: At 900 - 950°, in vacuo, Mg and $MgCl_2$ evaporate and are condensed in the condenser of the apparatus; Ti, with a vapor tension very low at these temperatures, remains in the mass. Evaporation of Mg and $MgCl_2$ beings from the sponge surface and proceeds from the pores, the evaporation front thus moving inwards. Two effects, however, were observed which were inexplicable on this basis. Firstly, when separation time was insufficient, $MgCl_2$ was found to be concentrated in the upper layers of

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the mass, although the temperature there was not lower than in the rest of the vessel. Secondly, chemical analysis of samples taken form various points in the mass showed that, in the external layers of the sponge, residual Mg and $MgCl_2$ concentration was higher than in the inner layers. Experiments on separation of finely dispersed Ti in electrolyte (NaCl and K_2TiF_6) showed that, with incomplete separation, the salts were concentrated in the external layers of the specimen. In a further experiment, pieces (20 - 30 g) of separated Ti sponge were immersed in fused $MgCl_2$ and soaked for 1 hour. After solidification, the sponge pieces were separated from the $MgCl_2$ and sections cut to observe the extent of impregnation. It was found that $MgCl_2$ was concentrated mainly in separate locations around the sponge surface and was absent from the center. The author explains these observations by considering the movement of Mg through capillaries during reduction and the evaporation of excess Mg and $MgCl_2$ formed, firstly from the sponge surface and secondly from capillaries through which movement is effected by surface tension. There are 7 figures, 4 tables and 4 Soviet-bloc references.

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S/598/61/000/006/007/034
D228/D303

AUTHORS: Ogurtsov, S.V., Revyakin, A.V., and Reznichenko, V.A.

TITLE: Study of the physico-chemical bases of the reduction of $TiCl_4$ by sodium

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Titan i yego splavy. no. 6, 1961. Metallotermiya i elektrokhimiya titana, 41 - 49

TEXT: Despite the industrial use of the sodiothermic process for producing metallic Ti, no data have been published on the theoretical aspects of the reduction of $TiCl_4$ by Na, so the authors studied this question in particular: 1) The distribution of reaction products at different temperatures; 2) The role of mixing; 3) The influence of both the consumption of $TiCl_4$ on the yield of sponge and soaking the reaction products on the grain coarsening; and 4) The reaction mechanism. The experiments were conducted with purified Na in an argon-filled beaker fitted with a rotatable mixer. Temperature influence. The results of various tests show that no reduction

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Study of the physico-chemical ...

occurs at <[illegible]0° under isothermic conditions; in exothermic reactions the process starts at 500 - 550°; however, mixing of the reaction products lowers the critical temperature to 320° and 270° respectively. Distribution of reaction products. Na is coated with a crust of Ti and chlorides at 550°, which impedes the continuance of the reaction. At 650°, after 30 % of the $TiCl_4$, has been consumed, reaction products with a Ti content of 12 - 13 % grow above the original level of the molten Na in which cavities appear, being coated with a pyrophoric layer of chlorides; some $TiCl_3$ is formed on the surface of the sponge when [illegible]0 % of the $TiCl_4$ has been reduced. Above 800° the sponge grows up the beaker's sides, the respective Ti content of the reaction products and sponge after 30 - 70 % of the $TiCl_4$ has been consumed being 21 - 29 % and 13 - 20 %. Influence of $TiCl_4$ consumption on the yield of sponge. More of the reducer is used up in the sodiothermic process than in the case in the magnesiothermic process. The optimum consumption of $TiCl_4$ is 97 - 100 % of its stoichiometric quantity for the reduction process; the consumption of Na per 1 g of sponge is also at a minimum in this event. Particle coarsening. The increase of the reaction tem-

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perature considerably raises the yield of coarse Ti: in high temperature processes the content of the >12-mesh fraction is 60 % as compared with 20 - 30 [illegible] at lower temperatures. Soaking for 3 hours at 900° also boosts the yield of coarse Ti. Na is believed to enter the reaction zone as a result of evaporation, and the reaction proceeds on the growing sponge's surface and in its upper part between the $TiCl_4$ and Na. Only mixing removes the crust on the Na b[illegible]ow 650°, but at this temperature the vapor-tension of Na is sufficient for it to penetrate the reaction mass; reduction occurs gradually with the formation of titanous chlorides as intermediate products. Above 800°, when the sponge is coated with molten NaCl, the vapor-tension of Na is much higher, so no transitional layer of lower chlorides is present. In conclusion the authors note the similarity of many of the features of the reduction of $TiCl_4$ by Na and Mg at elevated temperatures, though the latter results from the capillary rise of the liquid. A further difference may be that in the sodiothermic process Ti conglomerates into a sponge through the sintering of discrete grains -- hence the yield of the coarse fractions is greater at high temperatures. There are 7 figures.

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REVYAKIN, A.V.

Investigating the vacuum separation of reaction products. Titan i ego splavy no.6:27-38 '61. (MIRA 14:11)
(Titanium--Metallurgy) (Vacuum metallurgy)

OGURTSOV, S.V.; REVYAKIN, A.V.; REZNICHENKO, V.A.

Study of the physicochemical principles of $TiCl_4$ reduction by sodium. Titan i ego splavy no.6:41-49 '61. (MIRA 14:11)
(Titanium--Metallurgy)

REVYAKIN, A.V.; MIROCHNIKOV, V.S.

Investigating the vacuum separation of the reaction product.
Titan i ego splavy no.2:92-99 '59. (MIRA 13:6)

1. Institut metallurgii AN SSSR.
(Titanium--Metallurgy) (Vacuum metallurgy)

BARDIN, I.P., akademik; REVYAKIN, A.V.

Interaction of titanium with water vapor. Titan i ego splavy no.2:119-125 '59. (MIRA 13:6)

1. Institut metallurgii AN SSSR.
(Titanium—Hydrogen content)

REVYAKIN, A.V.; REZNICHENKO, V.A.

Kinetics of the interaction of titanium with hydrogen. Titan i ego splavy no.2:126-132 '59. (MIRA 13:6)

1. Institut metallurgii AN SSSR.
(Titanium—Hydrogen content)

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S/180/60/000/004/008/027
E111/E452

5.2100 21.3000

AUTHORS: Mirochnikov, V.S. and Revyakin, A.V. (Moscow)

TITLE: Vacuum Distillation of Magnesium Chloride and Metallic Magnesium from Titanium Sponge

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1960, No.4, pp.54-62

TEXT: The authors give results of investigations made in 1957-59 with the object of studying the vacuum-heat treatment of titanium sponge. Moisture evolution from magnesium chloride during vacuum heating, reaction of moisture with titanium sponge and the sequence of removal of magnesium and magnesium chloride from the products of the magnesium-thermic reduction of titanium tetrachloride were studied. The apparatus used (Fig.1) included a vacuum micro-balance and an arrangement (consisting of two vacuum gauges, in series in the vacuum line with a liquid-nitrogen trap between them) for determining the hydrogen content of the gas. Experiments were carried out both with industrial and synthetic materials. Fig.2 shows pressure, temperature and specimen weight-loss as functions of time. Fig.3 gives pressure and temperature as functions of time for dehydration of magnesium

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Vacuum Distillation of Magnesium Chloride and Metallic Magnesium from Titanium Sponge

chloride. The quality of metal obtained by treatment of a "monolith" and the reduction product from the reaction vessel were compared. From the sponge obtained titanium ingots were melted and their hardness measured; results for heating up to 900°C with and without holding at 200°C (holding improves the metal) being determined. On the basis of this work the authors sub-divide the first period of distillation (0 to 600°C) into two stages; at 0 to 350°C $MgCl_2$ hydrates are decomposed without oxidation of titanium; at 350 to 600°C the moisture from decomposition of the monohydrate oxidizes titanium. In their study of the second period (600 to 900°C) the authors determined sponge porosity; Fig.4 shows the overall, open and closed porosity across the reaction vessel, highest porosity is at the walls. To find the influence of reduction conditions three were used: at 750 to 780°C; 750 to 780 rising to 920 to 950°C through addition of titanium tetrachloride; 920 to 950°C. After reduction, the vessels with the products were treated and porosity measured for the whole sponge: Fig.5 shows porosity for the

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Vacuum Distillation of Magnesium Chloride and Metallic Magnesium from Titanium Sponge

three reduction temperature levels. The volumes of closed pores as determined by porosity determinations in water and in acetone are compared in Table 2. A special small reduction reactor (6 to 7 g charge) was used to determine the speed of vacuum distillation of sponges obtained under various conditions (Fig.6): it appears that magnesium chloride and magnesium evaporate from the sponge surface, which they reach by the action of surface-tension forces. The authors' general conclusion is that to obtain a high-quality sponge the magnesium-thermic product must be treated either in the "monolith" form or in the removed state provided the removal is effected in a dry atmosphere. There are 6 figures, 3 tables and 5 Soviet references.

SUBMITTED: April 29, 1960

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REVYAKIN, A.V.

Revyakin, A.V., and V.S. Mirochnikov (Institute of Metallurgy, Academy of Sciences USSR). Investigation of the Vacuum Separation of the Reaction Products (of the Magnesium Reduction of Titanium Tetrachloride), p. 92. Titan i yego splavy. vyp. II: Metallurgiya titana (Titanium and Its Alloys. No. 2: Metallurgy of Titanium) Moscow, Izd-vo AN SSSR, 1959. 179 p.

This collection of papers deals with sources of titanium; production of titanium dioxide, metallic titanium, and titanium sheet; slag composition; determination of titanium content in slags; and other related matters. The sources of titanium discussed are the complex sillimanite ores of the Kyakhtinskoye Deposit (Buryatskaya ASSR) and certain aluminum ores of Eastern Siberia. One paper explains the advantages of using ilmenite titanium slags for the production of titanium dioxide by the sulfuric acid method. Production of metallic titanium by thermal reduction processes (hydrogen, magnesium, and carbon reduction) is the subject of several papers, while other papers are concerned with the electrolytic production of titanium. Other subjects dealt with are interaction of titanium with water vapor and with hydrogen and the determination of titanium in slags.

REVYAKIN, A.V.

Bardin, I.P., and A.V. Revyakin (Institute of Metallurgy, Academy of Sciences USSR). Reaction of Titanium With Water Vapor, p. 119. Titan i yego splavy. vyp. II: Metallurgiya titana (Titanium and Its Alloys. No. 2: Metallurgy of Titanium) Moscow, Izd-vo AN SSSR, 1959. 179 p.

This collection of papers deals with sources of titanium; production of titanium dioxide, metallic titanium, and titanium sheet; slag composition; determination of titanium content in slags; and other related matters. The sources of titanium discussed are the complex sillimanite ores of the Kyakhtinskoye Deposit (Buryatskaya ASSR) and certain aluminum ores of Eastern Siberia. One paper explains the advantages of using ilmenite titanium slags for the production of titanium dioxide by the sulfuric acid method. Production of metallic titanium by thermal reduction processes (hydrogen, magnesium, and carbon reduction) is the subject of several papers, while other papers are concerned with the electrolytic production of titanium. Other subjects dealt with are interaction of titanium with water vapor and with hydrogen and the determination of titanium in slags.

MIROCHNIKOV, V.S. (Moskva); REVYAKIN, A.V. (Moskva)

Vacuum distillation of magnesium chloride and magnesium metal from titanium sponge. Izv.AN SSSR.Otd.tekh.nauk.Met.i topl. no.4:54-62 Jl-Ag '60. (MIRA 13:9)
(Titanium--Metallurgy) (Magnesium) (Vacuum metallurgy)

REVYAKIN, B.N.; KOROBKOV, I.I.; YEVSTYUKHIN, A.I.; LYASHENKO, V.S. [deceased]

Investigating the kinetics of niobium oxidation in the 500 - 1000° temperature range. Met. i metalloved. chist. met. no.3: 175-182 '61. (MIRA 15:6)
(Niobium--Metallography) (Oxidation)

ACCESSION NR: AT4005962 S/2755/63/000/004/0093/0109

AUTHOR: Korobkov, I. I.; Revyakin, B. N.; Chen, Ho-ming

TITLE: Kinetics of oxidation of electron beam melted iodide niobium

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniye chisty*kh metallov, no. 4, 1963, 93-109

TOPIC TAGS: niobium oxidation, high purity niobium oxidation, iodide niobium, electron beam melted niobium, high purity niobium

ABSTRACT: The kinetics of oxidation of highly purified iodide Nb, refined in an electron beam furnace under a vacuum and then cold rolled to a thickness of 1mm, was investigated at 350-1200C by continuous weighing on a vacuum microbalance in an atmosphere of dry oxygen. The sensitivity of the balance was 2×10^{-6} g at temperatures up to 500C and 3×10^{-5}g above this point. The effect of temperature was studied at a pO_2 of 155 mm Hg, in addition to which the effect of oxygen pressures from 20-760 mm Hg was studied at 400, 625 and 1000C. The results are graphed and indicate that, as expected, the oxidation rate generally increases with increasing temperature, except in the intervals 600-612, 900-950 and 1000-1100C. Oxidation generally begins by following a parabolic law, accompanied by

ACCESSION NR: AT4005962

the formation of a dark oxide film, after which oxide formation continues to increase according to a linear law. After the rate is stabilized at any given temperature, the weight increase can be expressed by the formula: $\Delta m = Kt + C$ where t is the time in seconds, K is a constant at any given temperature and C is a constant which characterizes the foregoing parabolic process. The values of K at various temperatures were calculated and are shown in the Enclosure, revealing that K is directly proportional to temperature only at temperatures up to 600C. Visual observation of the oxidation process revealed that the linear increase in weight is accompanied by the formation of a porous white layer on top of the dark sublayer, and that the anomalous behavior of the oxidation rate in the range 600-612C is associated with a sharp increase in thickness of the dark sublayer. The study of the relationship between oxygen pressure and oxidation rate showed that the linear portion of the oxidation curve increases in slope with increasing pO_2, while the parabolic section is essentially unchanged. Orig. art. has: 1 table and 10 figures.

ASSOCIATION: Inzhenerno-fizicheskiy institut, Moscow (Institute of Physics and Engineering)

SUBMITTED: 00 DATE ACQ: 17Jan64 ENCL: 01

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ACCESSION NR: AT4005962

ENCLOSURE: 01

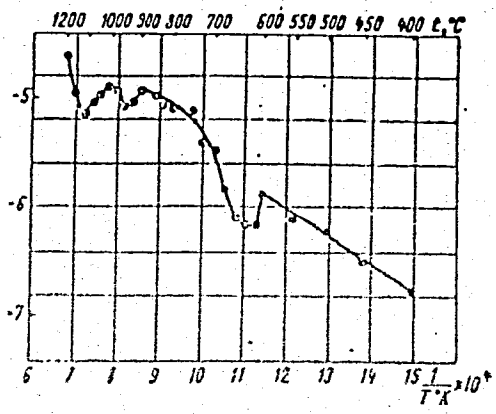

Fig. 1. Relationship between the logarithm of the linear oxidation constant of niobium and the reciprocal of the absolute temperature.

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REVYAKIN, B.N.; KOROBKOV, I.I.

Measuring the temperature of a niobium surface during oxidation. Fiz.met.i metalloved. 15 no.4:624-625 Ap '63. (MIRA 16:6)

1. Moskovskiy inzhenerno-fizicheskiy institut.
(Niobium—Testing) (Oxidation)

S/755/61/000/003/016/027

AUTHORS: Revyakin, B.N., Korobkov, I.I., Yevstyukhin, A.I., and Lyashenko, V.S. (Deceased).

TITLE: Investigation of the kinetics of the oxidation of niobium within the 500-1,000°C temperature range.

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniye chistykh metallov. no.3. 1961, 175-182.

TEXT: The paper describes systematic experimental investigation of the kinetics of the oxidation of Nb in pure O at a 150-mm-torr pressure (equivalent to its partial pressure in the atmosphere at sea level) over a temperature (T) range from 500-1,000°C. A literature survey of Western bibliography (Gulbransen-Andrew, J. Inst. Metals, v.188, 1950, 586-599, and March 1953; Baur-Bridges-Fassel, J. Electrochem. Soc., v.103, no.6, 1956; Klopp-Sims-Jaffee, Trans. ASM, v.51, 1959, 282; Goldschmidt, H., J. Inst. Metals, v.87, no.7, March 1959) indicates the incompleteness and contradictoriness of the present state of the art. The investigation is based on the continuous time recording of the increase in weight of specimens at constant T. The construction of the micro-torque balance employed is described and depicted in an orthometric drawing. The torque rod consisted of W wire 100

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and 150-μ diam. A 110-mm long quartz balance arm was AgCl-brazed to the center of the torque rod. The specimen and a counterweight were suspended from the 2 yokes of the balance beam by means of quartz threads. Calibration and repeat runs indicated a sensitivity of $7 \cdot 10^{-6}$ to $4 \cdot 10^{-5}$ and a fully satisfactory repeatability of measurements. Displacement readings, by means of the optical instrument OMS-6, had an accuracy of 0.001 mm. Prior to admittance of the O, a vacuum of 10^{-6} torr was established and thermal equilibrium at the desired T achieved (special tubular furnace; T to within ±3°C). O was produced by vacuum heating of large crystals of $KMnO_4$ and was purified by passage through a fiberglass filter and a liquid-N trap. The 20x10x1-mm specimens of remelted Nb contained 99.9% Nb, 0.027% O, 0.0004% H, 0.002% N, and 0.01% C; the cast metal had a H_B of 110-120, which, after cold-rolling to 1-mm, increased to 240. All comparative data (mg/cm^2 versus time, 0-300 min) are shown for specimens from a single casting batch, since the rate of oxidation (R of O) varies substantially (up to 150%) from batch to batch (i.e., is highly impurity-sensitive). Except for a nonlinear initial period, the specimen weight increases linearly with time. A plot of the log of the linear oxidation constant K vs $1/T^{\circ}_{abs}$ is interpreted to indicate that the Arrhenius equation ($K = Ae^{-Q/RT_{abs}}$, where A and R are const., Q is the activation energy) is valid only within the 600-800°C interval. In the 500-600° range the

oxidation rate increases less than expected from an extrapolation of the Arrhenius line. Beyond 800° a sharp downward break occurs to a minimum at 900°C, with a 900° oxidation rate of about one-half that observed at 800°. After a certain time (depending on the respective T) a porous, brittle, light-yellow oxide forms a two-layer scale on the specimen surface. The outer yellow oxide layer continues to grow, whereas the thickness of the underlying dark film remains constant. A detailed description is given of the oxide layers developed at 700, 800, and 900° and higher. Tests with a gold-sprayed specimen oxidized for 3 hrs at 600° showed that the gold remained on the outer surface, so that the oxidation of the Nb is the result of O-ion diffusion through the oxide layer. The test results are reinterpreted in the light of the afore-cited Western references. The slowdown of the oxidation rate between 800 and 900° is attributed to the irreversible transformation from α-Nb_2O_5 to β-Nb_2O_5 (cf. Goldschmidt), also to a sintering of the oxides at T above 800°. There are 6 figures and the above-cited 5 English-language U.S. references.

ASSOCIATION: MIFI (Moscow Engineering Physics Institute).

L 9995-63 EPF(n)-2/EWP(q)/EWT(m)/BDS--AFFTC/ASD/SSD--WW/JD/JG
ACCESSION NR: AP3000109 S/0126/63/015/004/0624/0625

61
60

AUTHOR: Revyakin, B. N.; Korobkov, I. I.

TITLE: Measurement of the surface temperature of niobium during oxidation

SOURCE: Fizika metallov i metallovedeniye, v. 15, no. 4, 1963, 624-625

TOPIC TAGS: niobium oxidation, zirconium oxidation, surface temperature, oxidation rate

TEXT: Direct measurements have been made of the surface temperature of commercial-grade Nb during oxidation in air at 650, 795, and 900C and of Zr at 900C. The measurement accuracy was + or - 3C. Within 5 to 10 sec after Nb specimens were introduced into a furnace with a temperature of 650, 795, or 900C, the surface temperature of the specimens rapidly rose 10, 80, or 110C, respectively, above the ambient temperature and after a few seconds dropped back. In the case of Zr, the increase was 115C; it occurred after a 20-sec heating and lasted a considerably shorter time than in Nb, probably

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L 9995-63
ACCESSION NR: AP3000109

because of the high protective properties of Zr oxides. The magnitude of overheating is stated to depend on many factors, such as the oxidation rate, heat of oxide formation, area-to-mass ratio of the specimen, specific heat, heat conductivity, and condition of the specimen surface, all of which must be considered in studying the kinetics of oxidation of active metals. Orig. art. has: 2 figures.

ASSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut (Moscow Engineering Physics Institute)

SUBMITTED: 09Aug63 DATE ACQ: 12Jun63 ENCL: 00

SUB CODE: 00 NO REF SOV: 000 OTHER: 000

ja/cs

Card 2/2

KOROBKOV, I.I.; REVYAKIN, B.N.; CHEN'KHE-MIN [Ch'ên Ho-ming]

Electronographic and X-ray investigation of oxide films on niobium. Met. i metalloved. chist. met. no. 4:84-92 '63.

Investigating the kinetics of the oxidation of niobium iodide remelted by the electron-beam method. Ibid.:93-109. (MIRA 17:5)

S/137/62/000/007/064/072
A160/A101

AUTHORS: Revyakin, B. N., Korobkov, I. I., Yevstyukhin, A. I., Lyashenko, V.S.

TITLE: An investigation of the kinetics of niobium oxidation in the temperature range of 500 - 1,000°C

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 7, 1962, 90 - 91, abstract 7I609 (In collection: "Metallurgiya i metalloved. chist. metallov". no. 3, Moscow, Gosatomizdat, 1961, 175 - 182)

TEXT: In the temperature range of 500 - 1,000°C the isothermal process of niobium oxidation obeys linear laws. The niobium oxidation rate decreases ~ 2 times when increasing the temperature from 800 to 900°C. A conversion of α-Nb_2O_5 into β-Nb_2O_5 is observed at these temperatures. A roentgenographic analysis showed that a scale, corresponding to α-Nb_2O_5, develops on niobium samples subjected to oxidation at 500 - 800°C, and that the scale consists of β-Nb_2O_5 at temperatures of $\geqslant$ 900°C. A decrease of the oxidation rate in the temperature range 800 - 900°C is connected with a caking of oxides. This is clearly noted at temperatures of > 800°C. There are 5 references.

Ye. Layner

[Abstracter's note: Complete translation]

Card 1/1

[redacted], L. .

Reyvakin, L. P. and Lapovok, L. Ya. - "On the features of peripheral circulation in patients suffering from hypertonic condition," In symposium: VIII Sessiya Neyrokhirurg. i soveta i Leningr. in-ta neyrokhirurgii (Akad. med. nauk SSSR), Moscow, p. 67-69

SO: U-3600, 10 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 6, 1949).

REVYAKIN, N.; PAVLENKO, G.; KADINSKIY, O.

Business and employees of the State Bank. Den. i kred. 18 no.10:25-35 O '60. (MIRA 13:10)

1. Krymskaya oblastnaya kontora Gosbanka (for Revyakin). 2. Kiyevskaya oblastnaya kontora Gosbanka (for Pavlenko). 3. Starshiy inspektor Leningradskoy gorodskoy kontory Gosbanka (for Kadinskiy).
(Banks and banking) (Bank employees)

ACC NR: AP7009123 SOURCE CODE: UR/0413/67/000/003/0111/0111

INVENTOR: Revyakin, N. I.

ORG: None

TITLE: Actuating mechanism of a device for setting the rudders of free-spinning aircraft models. Class 42, No. 191172

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 3, 1967, 111

TOPIC TAGS: rudder, aircraft control equipment, remote control

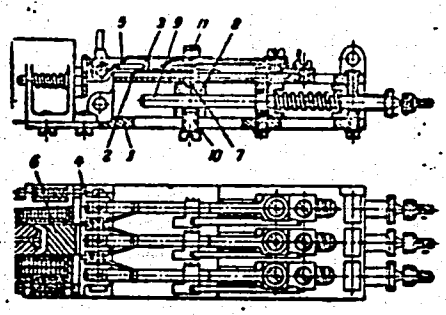
ABSTRACT: This Author's Certificate introduces: 1. An actuating mechanism of a device for setting the rudders of free-spinning aircraft models. The device contains a trigger unit, spring-loaded rods connected through pull rods to the rudders of the model, a drive electromagnet with spring-loaded fork connected to hinge levers, and electrical contacts for signal lamps. The weight and size of the actuating mechanism are reduced by building the geared racks for the trigger unit into guide slots in the housing. These racks are kinematically connected to the electromagnet through hinge levers fastened to the spring-loaded fork. Built into the housing are spring-loaded pins bearing against the base of the racks and mating with sliders which hold the spring-loaded rods in the ready position. 2. A modification of this mechanism in which the strength of the contacting elements is increased by fastening a runner on the end

UDC: 620.178 621.316.544.4

Card 1/2

ACC NR: AP7009123

of each geared rack coated with a layer of insulating material to switch off the signal lamp when the rod is raised.



1--housing; 2--rack; 3--lever; 4--fork; 5--spring; 6--electromagnet; 7--pin; 8--slider; 9--rod; 10--screw; 11--runner

SUB CODE: 01/ SUBM DATE: 26Dec64

Card 2/2

ACC NR: AR6032151 SOURCE CODE: UR/0169/66/000/006/D013/D013

AUTHOR: Revyakin, P. S.

TITLE: Methods, results, and direction of geophysical exploration in Eastern Kazakhstan

SOURCE: Ref. zh. Geofizika, Abs. 6D89

REF SOURCE: Sb. Geofiz. issled. v Kazakhstane. Alma-Ata, Kazakhstan, 1965, 151-157

TOPIC TAGS: geologic exploration, gravimetric survey, geophysical exploration, geophysical exploration methods, vertical electric sounding /Eastern Kazakhstan

ABSTRACT: The variety in the occurrence of metal ores within the territory of Eastern Kazakhstan and the complexity of the physicogeographic conditions there are the reason for considerable differences in the geophysical methods used in exploring the different structural-facial zones and subzones. The author discusses the principal geological problems encountered in geological exploration,

Card 1/2 UDC: 550.830(574.4)

ACC NR: AR6032151

emphasizing the methodological and production aspects of experimental studies. Regional geophysical studies are conducted to a scale of 1:200,000 by the method of combined gravimetric surveying and vertical electrical sounding for an inaccessible territory. Yu. Kaznacheyeva. [Translation of abstract] [SP]

SUB CODE: 08/

Card 2/2

RÊVYAKIN, S.A., kand.med.nauk

Laparotomy and repeated administration of antibiotics into the abdominal cavity in pneumococcal peritinitis. Khirurgiia 36 no.11:132-133 N '60. (MIRA 13:12)

1. Iz khirurgicheskogo otdeleniya (zav. - zasluzhennyy vrach USSR kand.med.nauk S.A. Revyakin) Stryyskoy gorodskoy bol'nitsy.
(PERITONITIS) (PNEUMOCOCCAL INFECTIONS) (ANTIBIOTICS)

BLAKFELD, YU. I., RAVIKEN, M.

Agriculture - Penza (Province)

Practices of the Houses of Agricultural Crops. Sov. agron. 10 no. 4, 1952

Monthly List of Russian Accessions, Library of Congress, July 1952. UNCLASSIFIED.

REVYAKIN, P.

Cash payment on the "Bol'shevik" Collective Farm. Nauka i pered. op. v sel'khoz. 8 no.10:27-30 O '58. (MIRA 11:11)

1. Zaveduyushchiy orgotdelom Gorodokskogo raykoma kommunisticheskoy partii Ukrainy.
(Collective farms) (Wages)

REVYAKIN, S.A., zaslyzhenyy vrach USSR (Stryy Drogobychskoy obl.,ul. Stalina d.11, kv.2)

Treating tuberculous pemitonitis by repeated abdominal injections of streptomycin. Mo.vkhir.arkh. no.3:13-16 My-Je '58. (MIRA 11:9)

1. Khirurgiczeskoye otdeleniye (zav. - S.A. Revyakin) Stryyskoy gorodskoy bol'nitsy.
(TUBERCULOSIS)
(PERITONITIS)
(STREPTOMYCIN)

REVIAKIN, S. A., Cand Med — (diss) "The use of antibiotics in peritonites,"
Stryy, 1958, 20 pp (Lvov State Medical Institute)
(KL, 40-58, 124)

RAVIKIN, S. A.

Penicillin - Therapeutic Use

Intraperitoneal administration of penicillin in suppurative peritonitis., Sov. med., No. 1, 1952.

Monthly List of Russian Accessions, Library of Congress, May 1952. UNCLASSIFIED.

REVYAKIN, S.A.

Intraperitoneal administration of penicillin in suppurative peritonitis. Sovet. med. No.1:32-33 Jan 52. (CLML 21:4)

1. Of the Surgical Division of Stry Municipal Hospital, Ukrainian SSR.

SOV/123-59-15-59865

Translation from: Referativnyy zhurnal. **Mashinostroyeniye**, 1959, Nr 15, p 137 (USSR)

AUTHOR: Revyakin, V.

TITLE: A Galvanic Repair Method of **Bearing Surfaces** of Worn Machine Parts

PERIODICAL: S. Kh. Sibiri, 1958, Nr 12, pp 96 - 100

ABSTRACT: Worn bearing surfaces **are built up with zinc or an** iron-zinc alloy by electroplating. The **deposition of zinc is carried out in an** electrolyte containing (grams/liter): 420 - $ZnSO_4 \cdot 7 H_2O$, 60-80 - Na_2SO_4, 10 - H_2O, 25-30 - H_3BO_3, 20-30 - **glycerin, at room temperature** and a current density of 2-5 amp/dm^2. **Within one hour a metal** layer of 30-60 μ thickness and H_B 30-40 is **deposited in such a way.** The deposition of the iron-zinc alloy is effected **in an electrolyte containing** (grams/liter): 150-200 - $ZnSO_4 \cdot 7 H_2O$, 20-30 - $FeSO_4 \cdot 7 H_2O$, 80-100 - $Na_2SO_4 \cdot 10 H_2O$, 10-20 - glycerin and 0.05 H_2SO_4, at a **temperature of** 18-20°C **and** a current density of 2-3 amp/dm^2; the plating **rate amounts** to 20 - 30 μ/hour, H_B 50.

S.V.M.

Card 1/1

REVYAKIN, V.B

122-4-14/29

AUTHOR: Revyakin, V.B., Candidate of Technical Sciences, and Myasnikov, P.D., Engineer.

TITLE: The iron plating of machine components in repair work. (Zheleznenie detaley mashin pri remonte.)

PERIODICAL: "Vestnik Mashinostroeniya" (Engineering Journal), 1957, No.4, pp. 64 - 65 (U.S.S.R.)

ABSTRACT: Iron plating for the restoration of worn components is normally carried out in an electrolyte consisting of iron chloride, common salt and hydrochloric acid. This electrolyte does not yield deposits with good adhesion. In the Irkutsk Engineering Plant (Irkutskiy Mashinostroitel'niy Zavod) "imeni V.V. Kuybysheva" a better electrolyte was tested in service, containing iron chloride, manganese chloride and hydrochloric acid. Deposits of up to 5 to 6 mm thickness can be obtained. From a bath of 650 g/litre FeCl, 100 g/litre MnCl and 0.06 g/litre HCl at a temperature of 70 °C and a current density of 15 A/dm^2 a coat of about 200 Brinell hardness can be obtained; greater wear resistance is achieved in more dilute baths with 300 g/litre $FeCl_2$, 200 g/litre $MnCl_2$, 70 g/litre NH_4Cl and 0.8 g/litre HCl, a maximum current density of 9 A/dm^2 and a temperature of 65 °C when

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The iron plating of machine components in repair work. (Cont.)

122-4-14/29

wear resistant deposits of up to 2 mm with a hardness of 400 Brinell can be obtained.

2/2

There is 1 graph.

AVAILABLE:

L 11210-66 EWT(d)/EWP(1) IJP(c) GG/BB

ACC NR: AP6002569 SOURCE CODE: UR/0286/65/000/023/0060/0061

INVENTOR: Gorshkov, B. M.; Loginov, Ya. V.; Revyakin, V. F.; Faynshteyn, T. I. 44 44 44 44

ORG: none 48 B

TITLE: Storage mechanism. 166,144 Class 42, No. 176723

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 23, 1965, 60-61

TOPIC TAGS: computer component, computer memory, computer storage, potentiometer

ABSTRACT: An Author Certificate has been issued for a storage mechanism for the moving angular coordinate of a rotating shaft, which also supplies the signal for displacement between the fixed and moving coordinates. The mechanism includes two potentiometers, the drive of one of which is locked by a high-speed braking unit. To improve the high-speed action and to provide required displacements of the potentiometer drive under all operating conditions (synchronous motion, locked, and rotating), the potentiometer drives are kinematically interconnected by a flexible joint, and one of the potentiometer drives is mounted on the disk of the locking device (see Fig. 1).

UDC: 681.142

Card 1/2

L 11210-66
ACC NR: AP6002569

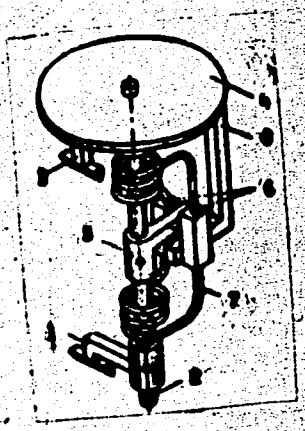

Fig. 1. Storage mechanism

1 - Lower potentiometer drive; 2 - potentiometer shaft; 3 - upper potentiometer drive; 4 - braking disk; 5 - lever; 6 - baffle plates; 7 - spring; 8 - stem.

[LB]

Orig. art. has: 1 figure.

SUB CODE: 09/ SUBM DATE: 11Jul64/ ATD PRESS: 4170

Card 2/2

S/123/62/000/002/007/012
A004/A101

AUTHOR: Revyakin, V. P.

TITLE: New antifriction zinc alloy for repairing babbitt and bronze bearings

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 2, 1962, 60, abstract 2B324 ("Izv. Irkutskogo s.-kh. in-ta", 1960, no. 16, 74-77)

TEXT: The author presents the results of investigations carried out by the Irkutskiy sel'skokhozyaystvennyy institut (Irkutsk Agricultural Institute) to improve the antifriction properties of iron-zinc alloys. An optimum alloy composition has been developed: iron 0.10 - 0.15%, lead 0.3 - 0.5%, the rest being zinc, as well as an electrolyte composition for its deposition (in gram/liter): zinc sulfate - 420, lead sulfate - 2 - 4, iron sulfate - 10 - 20, sodium sulfate - 80 - 100, glycerin - 40 - 50, boric acid - 10, sulfuric acid - 0.01 - 0.02. Deposition takes place at room temperature, the current density being 8 - 10 amp/dm^2, while mixing is effected by air. The author presents a table of comparative data on the quality of iron-zinc and iron-lead-zinc coatings. It is pointed out that the friction coefficient of the new antifriction iron-

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S/123/62/000/002/007/012
A004/A101

New antifriction zinc alloy ...

lead-zinc alloy on steel at a specific load of 20 kg/cm^2 exceeds that of Б-Н (B-N) babbitt on steel by 10 - 20%, while this increase amounts to 40 - 50% for the iron-zinc coating.

[Abstracter's note: Complete translation]

Card 2/2

REVYAKIN, V.I.

AUTHOR: Revyakin, V.P., Candidate of Technical Sciences, Lecturer, and Myasnikov, P.D., Engineer. 122-1-18/34

TITLE: The repair of metal cutting machine tool bearings by electro-deposition methods. (Remont podshipnikov metallorezhushchikh stankov gal'vanicheskim metodom)

PERIODICAL: "Vestnik Mashinostroyeniya" (Engineering Journal), 1957, No.1, pp. 67 - 69 (U.S.S.R.)

ABSTRACT: Detailed procedures employed by the Irkutsk Engineering Plant (Irkutskiy Mashinostroitel'niy Zavod) imeni V.V.Kuibysheva are described for depositing an anti-friction zinc alloy to a thickness of 1 mm (radial) on the inside of worn-out machine tool bronze bearings. The alloy contains 0.5 - 1.0% Fe, 0.5 - 1.0% Pb, rest zinc. 12 000 hours of testing have proved the suitability of the alloy. Bronze and cast iron bearing inserts can be electro-plated with the iron zinc alloy to the required build-up without subsequent machining. The plating of inner surfaces of complete bronze bearing sleeves is accomplished with rod-shaped anodes.

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AVAILABLE: Library of Congress

REVYAKIN, V.P., kandidat tekhnicheskikh nauk; MYASNIKOV, P.D., inzhener.

Electroplating in repairing machine tool bearings. Vest.mash.37 no.1:67-69 Ja '57. (MLRA 10:2)
(Bearings (Machinery)--Repairing)
(Electroplating)

Revyakin, V. P.

137-1957-12-25156

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 12, p 318 (USSR)

AUTHOR: Revyakin, V. P.

TITLE: Some Problems Dealing With the Strength of the Surface Layer in Machine Parts (Nekotoryye voprosy prochnosti poverkhnostnogo sloya detaley mashin)

PERIODICAL: Tr. Sibirsk. fiz.-tekhn. in-ta pri Tomskom un-te, 1955, Nr 34, pp 178-192

ABSTRACT: A description of results and methods employed in order to investigate the degree of cold hardening of wear surfaces of machine parts by means of measuring galvanic potentials; recommendations are made for the strengthening of the surface layer of machine parts, in order to increase its durability. A general technology is proposed for the creation of a strong surface layer on machine parts by means of a galvanic process. In particular, it is proposed that anti-frictional Fe-Zn alloys be utilized as a coating by means of simultaneous galvanic deposition of these metals. Because the Fe-Zn coating obtained is porous and, therefore, capable of retaining lubricants to a considerable degree, the parts will operate under conditions of fluid or semi-fluid friction.

Card 1/2

137-1957-12-25156

Some Problems Dealing With the Strength of the Surface Layer (cont.)

Operational tests of Fe-Zn coatings yielded positive results in bearings of industrial machines and automobiles, as well as in piston rings and the contact surfaces of bushings, gears, and other components.

N. K.

1. Metals-Hardening-Test results 2. Machines-Design

Card 2/2

SOV/137-58-12-25182

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 12, p 163 (USSR)

AUTHOR. Revyakin, V. P

TITLE Friction Phases and Wear Resistance of Electrolytic Iron Alloys (Fazy treniya i iznosostoykost' galvanicheskikh zheleznykh splavov)

PERIODICAL: Dokl. 7-y Nauchn. konferentsii, posvyashch. 40-letiyu Velikoy Oktyabr'sk. sots. revolyutsii. Nr 2. Tomsk, Tomsk. un-t, 1957, pp 45-46

ABSTRACT: A friction (F) phase is defined as a uniform state of F process, when the magnitude of wear (W) depends directly on the work of F and when the mechanism of W of the material remains constant and stable for an indefinite period of time. It is shown that wear resistance of electrolytic Fe alloys depends upon the F phase. The seemingly inconsistent results of W of electrolytic Fe-alloys are explained by structural changes of the surface layers of alloys under attrition and by the dependence of the W on the F phases. Recrystallization and self-hardening are observed upon heating of the surface of the metal through F (hardness and toughness of electrolytic Fe increase by 40-50% through F heat)

A. N.

Card 1/1

REVYAKIN, V.P.

Testing the wear resistance of galvanized iron and its alloys.
Izv. vys. ucheb.zav.; Fiz. no.1:132-139 '58. (MIRA 11:6)

1.Irkutskiy sel'skokhozyaystvennyy institut.
(Iron, Galvanized--Testing)

USSR/Chemical Technology. Chemical Products and Their Application. J-11
Electrotechnical Manufactures. Electrical Precipitation.
Chemical Sources of Current.

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27564

Author : V.P. Revyakin.
Title : Ferro-Zinc Electroplating as New Method of Reparing Machinery Parts.
Inst : Irkutsk Institute of Agriculture.

Orig Pub: Izv. Irkut. s.-kh. in-ta, 1954, (1955), vyp. 6, 175-191.

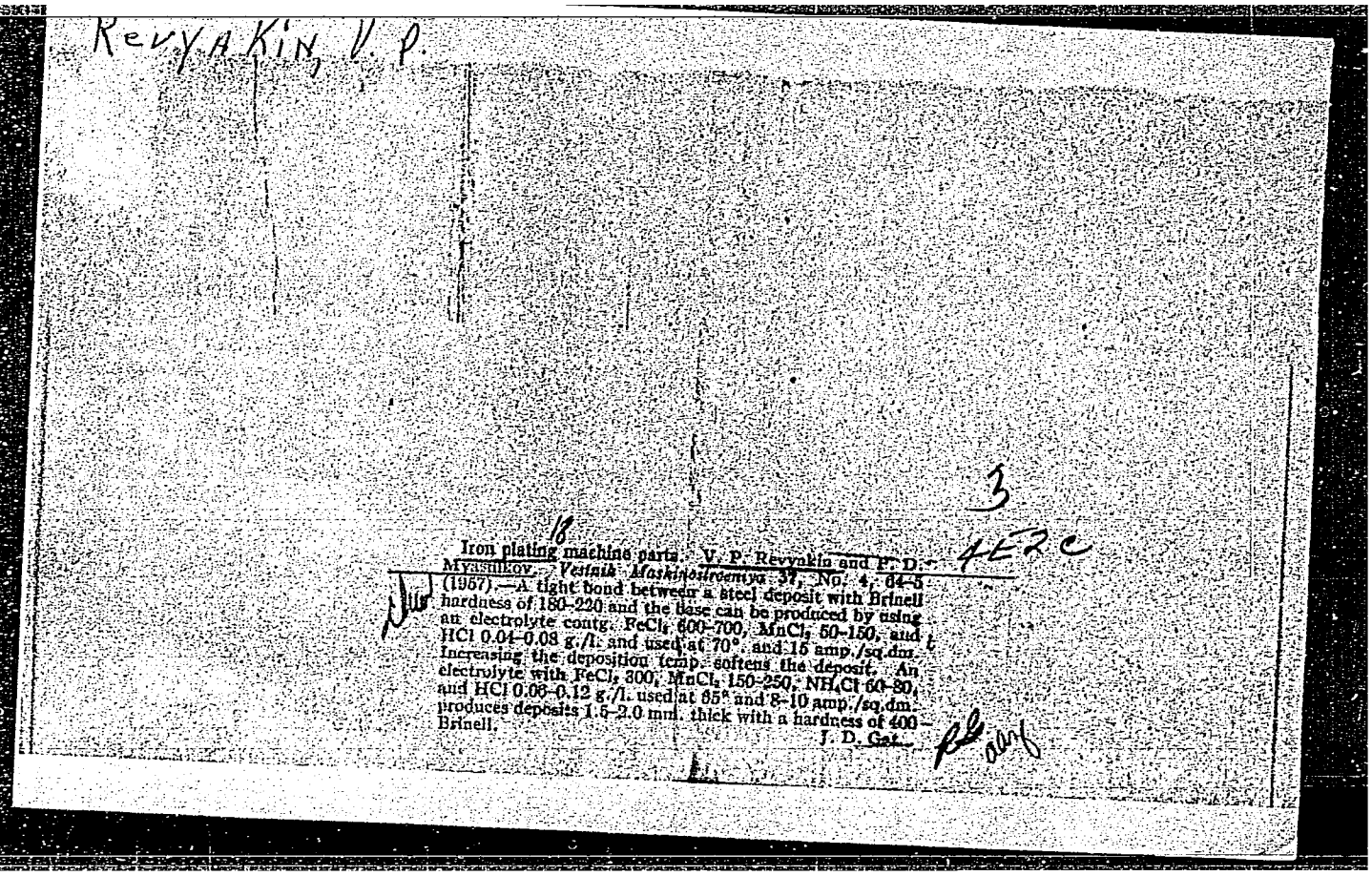
Abstract: The processes of preparation of Zn-Fe alloys were studied with a view to substitute non-ferrous metals used in plain bearings and to use them as antifriction metal in bimetallic bearings. The alloy of Zn with 1.5% of Fe suits these purposes best. The optimum conditions are: composition of the electrolyte (in g per lit) 150 to 200 of $ZnSO_4$, 80 to 120 of Na_2SO_4, 30 to 70 of $FeSO_4$; temperature - 45^0; D_k - 6 to 8 a/dm^2; pH - 3,5 to 4. The ratio $FeSO_4/ZnSO_4$ must be between 0.2 to 0.4. The color of deposits

Card : 1/2 -10-

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27564

varies from dark to milky depending on the content of Fe. The greatest adhesion strength is with gray iron and steel (1300 kg/sq. cm). Interior stresses are negligible and rise together with the increase of Fe content in the deposit from 0 (1.5% of Fe) to 116 kg/sq.cm (10% of Fe).

REVYAKIN, V. P. Doc Tech Sci -- (diss) "Metal ~~coating~~ plating with electrolytic alloys as a method of repairing motor-tractor parts." Len, 1958. 24 pp (Min of Agr USSR. Len Agr Inst. Engineering Faculty), 150 copies. List of author's works at end of text (13 titles) (KL, 36-58, 112)



Revyakin, V. P.

16

Iron plating machine parts. V. P. Revyakin and F. D. Myasnikov. *Vestnik Maskinostroeniya* 37, No. 4, 64–5 (1957).—A tight bond between a steel deposit with Brinell hardness of 180–220 and the base can be produced by using an electrolyte contg. $FeCl_2$ 600–700, $MnCl_2$ 50–150, and HCl 0.04–0.08 g./l. and used at 70°, and 15 amp./sq.dm. Increasing the deposition temp. softens the deposit. An electrolyte with $FeCl_2$ 300, $MnCl_2$ 150–250, NH_4Cl 60–80, and HCl 0.08–0.12 g./l. used at 85° and 8–10 amp./sq.dm. produces deposits 1.5–2.0 mm. thick with a hardness of 400–Brinell.

J. D. Gat

3

4E2C

Revyakin, V.P.

S/137/60/000/006/006/015
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 6, p. 306, # 13895

AUTHOR: Revyakin, V.P.

TITLE: The Method of Potentials for Investigating Galvanic Alloys

PERIODICAL: Izv. Irkutskogo s-kh. in-ta, 1959, No. 10, pp. 244-262

TEXT: The author describes a method of investigating galvanic alloys by plotting potential diagrams and their subsequent analysis. It was established that most of the galvanic alloys formed solid solutions, but some alloys formed mechanical mixtures. The phase diagrams for Ni-Cd, Fe-Cd and Ni-Mg are given. The potential method is effective in studying galvanic alloys. It makes possible to represent phase zones and moments of phase transformations on the diagram. There are 9 bibliographical titles.

T.R.

Translator's note: This is the full translation of the original Russian abstract.

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S/081/61/000/003/008/019
A166/A129

AUTHOR: Revyakin, V. P.

TITLE: The potentials method as a method for studying galvanic alloys

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 3, 1961, 339, abstract 3K163. (Izv. Irkutskogo s.-kh. in-ta, 1959, no. 10, 244 - 262)

TEXT: The method is based on methods used by Pushin to study thermal alloys and by Klochko to determine the extent to which an alloy's state is removed from equilibrium, judged from the potentials difference. Measurement of the galvanic alloys' potentials was performed in the same medium from which the alloy had been obtained. A stable potential reading was obtained 2 - 10 minutes after the polarizing current had been switched off. Fe wire was used as a comparison electrode for Fe alloys, and Zn wire for Zn alloys. The composition of the electrolyte and the depth to which the comparison electrode was immersed had no great effect on the potential reading. The potentials diagram for the two-component system was plotted from two halves. Each half was plotted on the basis of an electrolyte consisting of a solution of the salt of one metal, to which the salt of the other metal was gradually added. With a stable reverse system these halves converged at the same

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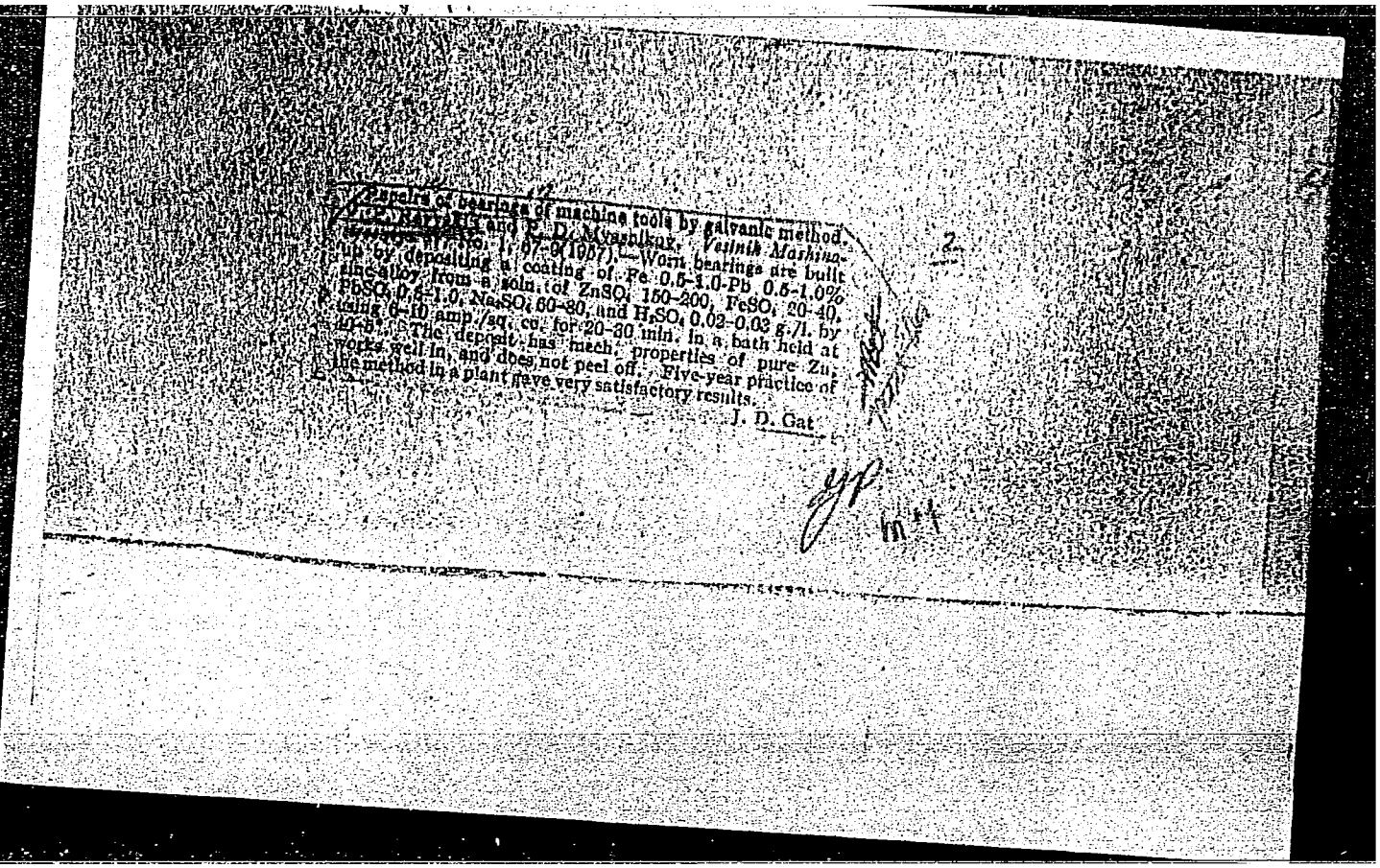

Repairs of bearings of machine tools by galvanic method.
[illegible] and P. D. Myasnikov. *Vestnik Mashinostroyeniya*, No. 1, 07-9(1957).—Worn bearings are built up by depositing a coating of Fe 0.5–1.0-Pb 0.5–1.0% zinc alloy from a soln. of $ZnSO_4$ 150–200, $FeSO_4$ 20–40, $PbSO_4$ 0.5–1.0, Na_2SO_4 60–80, and H_2SO_4 0.02–0.03 g./l. by using 6–10 amp./sq. cm. for 20–30 min. in a bath held at 40–50°. The deposit has mech. properties of pure Zn, works well in, and does not peel off. Five-year practice of the method in a plant gave very satisfactory results.
J. D. Gat

L 39400-65 EWA(c)/EPF(n)-2/EPA(s)-2/EWT(m)/EWP(b)/T/EWP(t) Pt-10/Pu-4/Pad
IJP(c) WW/JD/HW/GS
ACCESSION NR: AT4046215 S/0000/63/000/000/0075/0082

AUTHOR: Revyakin, V. P.

TITLE: Phase diagrams of electrolytic alloys

SOURCE: Yubileynaya konferentsiya po fiziko-khimicheskomu analizu. Novosibirsk, 1960. Fiziko-khimicheskiy analiz (Physicochemical analysis); trudy konferentsii. Novosibirsk, Izd-vo Sib. otd. AN SSSR, 1963, 75-82

TOPIC TAGS: electrolytic alloy, electrolytic alloy hardness, alloy phase diagram, electrolytic alloy potential, hard alloy coating, iron alloy, nickel alloy, zinc alloy, cadmium alloy, iron carbide, iron hydride

ABSTRACT: A unique basis for the rational choice of alloys earmarked for specific use requires the establishment of the laws according to which the properties of such alloys vary with their composition and state. After prolonged experimental investigation of electrolytic alloys, the author succeeded in establishing relationships which are generally analogous to those established by N. S. Kurnakov and his pupils for the case of metallic alloys during their fusion. Diagrams are given showing the electrode potential difference and hardness of the metal as a

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ACCESSION NR: AT4046215

function of the composition of the alloy for Fe-Ni, Fe-Zn, Fe-H, Zn-Cd, and Fe-C electrolytic alloys. All these diagrams belong to one of the three basic types: 1) eutectic alloy type; 2) solid solution type; or 3) chemical compound type. The author achieved an electrolytic coating from an iron-carbon alloy whose hardness may be as high as 1100 units on the microhardness scale. Such a coating can be of great practical importance since its durability may exceed the durability of electrolytic chromium. Orig. art. has: 4 formulas and 11 figures.

ASSOCIATION: None

SUBMITTED: 10Sep63 ENCL: 00 SUB CODE: MM

NO REF SOV: 000 OTHER: 000

Card 2/2

ŁEVYAKIN, Vasiliy Petrovich, doktor tekhn. nauk; SHEVNIN, Aleksandr Mikhaylovich, dots.; KHAVINSON, Yu.I., red.

[Organization of machine repair on a year-round schedule on the collective and state farms in Eastern Siberia] Organizatsiia remonta mashin po kruglogodovomu grafiku v sovkhozakh i kolkhozakh Vostochnoi Sibiri. Irkutsk, Irkutskoe knizhnoe izd-vo, 1963. 87 p. (MIRA 17:4)

REVYAKIN, V.S.; FASHEVSKIY, B.V.

Quantity of precipitation falling on the territory of the Gorno-Altai Autonomous Province. Izv. Alt. otd. Geog. ob-va SSSR no.5:108 '65. (MIRA 18:12)

1. Tomskiy gosudarstvennyy universitet.

L 32840-65 EWT(d)/EEO-2/EED-2

ACCESSION NR: AP5005578 S/0106/65/000/002/0015/0023

AUTHOR: Zhuravlev, A. G.; Alekseyevskiy, I. T.; Revyakin, V. V. /2 B

TITLE: Functioning of a phase AFC system with modulated signals and noise

SOURCE: Elektrosvyaz', no. 2, 1965, 15-23 19 4

TOPIC TAGS: AFC system

ABSTRACT: An experimental investigation of a typical phase AFC system operating under fluctuation noise conditions is reported; both AM and FM received signals were tested. The effect of the system parameters and signal characteristics upon the system lock-in band was investigated, as well as the system noise immunity. Integrating and proportionally integrating low-pass filters (PIF) for the incoming signals were used. Residual detuning caused by external noise was accepted as a measure of the noise immunity of the system. These results were obtained with AM signals: (1) The lock-in band, when an RC-filter and PIF are

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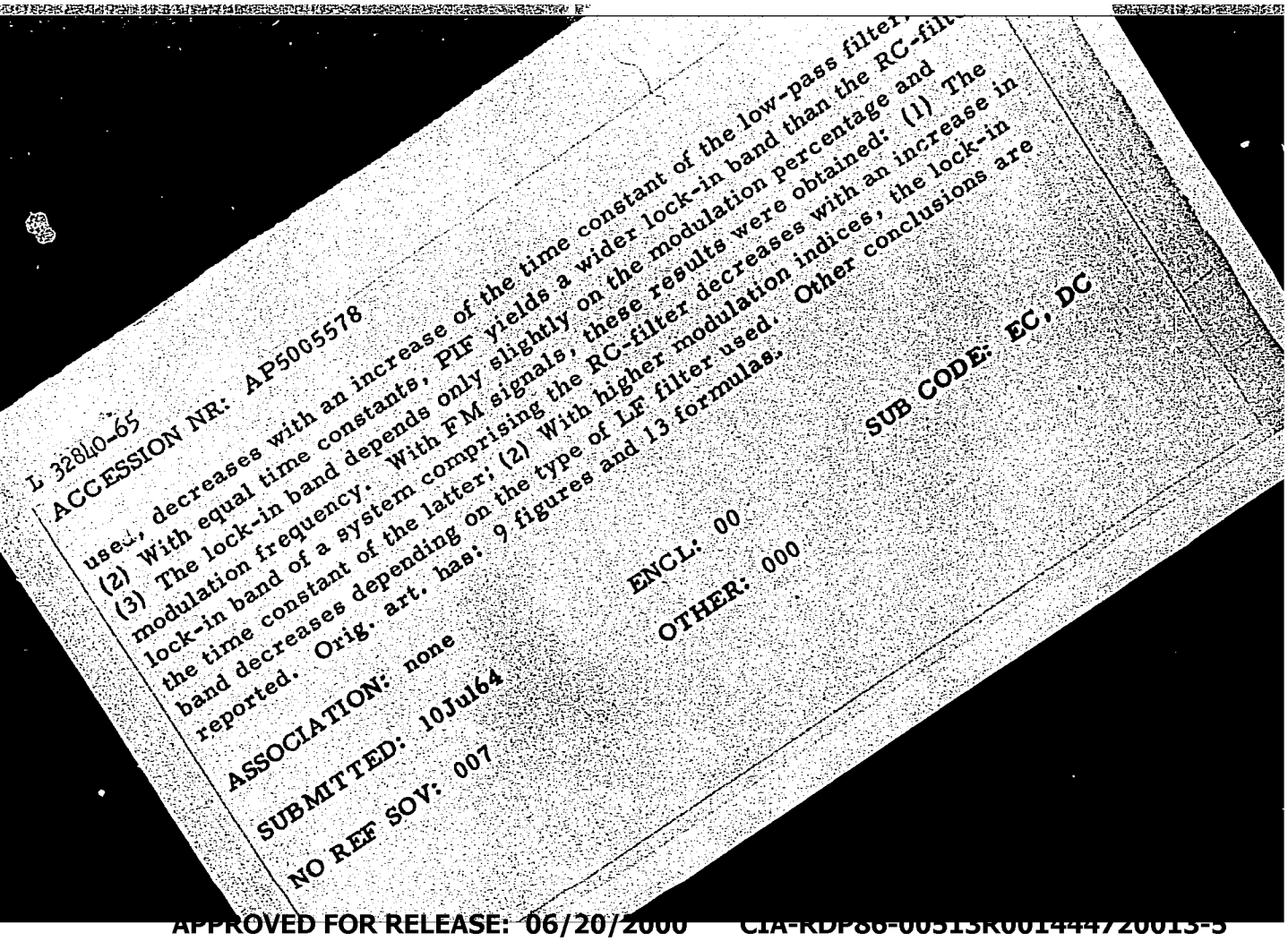

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ACCESSION NR: AP5005578

used, decreases with an increase of the time constant of the low-pass filter,
(2) With equal time constants, PIF yields a wider lock-in band than the RC-fil
(3) The lock-in band depends only slightly on the modulation percentage and
modulation frequency. With FM signals, these results were obtained: (1) The
lock-in band of a system comprising the RC-filter decreases with an increase in
the time constant of the latter; (2) With higher modulation indices, the lock-in
band decreases depending on the type of LF filter used. Other conclusions are
reported. Orig. art. has: 9 figures and 13 formulas.

ASSOCIATION: none

SUBMITTED: 10Jul64 ENCL: 00 SUB CODE: EC, DC

NO REF SOV: 007 OTHER: 000

Revyakin, Yu. Yu.

PHASE I BOOK EXPLOITATION 255

Chuvikov, Nikolay Timofeyevich

Preobrazovaniye ortogonal'nykh proyektsiy (Transformation of Orthogonal Projections) Moscow, Sovetskaya nauka, 1957, 172 p. 5,000 copies printed.

Ed.: Revyakin, Yu. Yu.; Ed. of Publishing House: Ushamirskiy, M. Ya.; Tech. Ed.: Gamzayeva, M. S.

PURPOSE: This book is intended for individuals studying descriptive geometry and drawing in accordance with mechanical-technical and mechanical engineering curricula of higher technical colleges (vtuz). It can be useful to designers working in engineering fields in which new methods of constructions of intersections of a plane with a surface, or of a surface with a surface, are needed.

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COVERAGE: The book deals with the transformation of orthogonal projections of a point and of plane figures. The author discusses the application of a "combined method" for the transformation of orthogonal projections to the solution of certain problems of descriptive geometry, and to the construction of axonometric projections. There are 15 references, all Soviet (1 translation). Soviet personalities mentioned include Glazunov, Ye. A.; Chetvertukhin, N.F.; Gordon, V. O.; Sementsev-Ogiyevskiy, M. A.; Dobryakov, A. N.; Kurdyumov, V. I.; Nogin, T. S.; Popov, I. G.; Maslov, I. F.; Popov, N. A.; Rudayev, A. K; Russkevich, N. L.; Rynin, N. A.; Chalyy, A. T. All these persons are authors of monographs on descriptive geometry and higher geometry. In addition to the authors of the referenced works, the Introduction contains the names of Soviet personalities who have made contributions to the development and improvement of the method of choosing new projection planes. These are Skripovyy, L. S.; Kolotovyy, S. M.; Dol'skiy, Ye. Ye.; Yuditskiy, M. M.; and Minin, P. M.

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AVAILABLE: Library of Congress

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LK/jmr
May 27, 1958

CHUVIKOV, Nikolay Timofeyevich; REVYAKIN, Yu.Yu., red.; USHAMIRSKIY, M.Ya., red.izd-va; GAMZAYEVA, M.S., tekhn.red.

[Transformation of arthogonal projection] Preobrazovanie ortogonal'nykh proektsii. Moskva, Gos.izd-vo "Sovetskaia nauka," 1957. 172 p. (Geometry, Projective) (MIRA 11:2)

REVYAKIN, Yu. Yu.

Revyakin, Yu. Yu. - "The mechanization of fertilizer application," Doklady (Mosk. s.-kh. akad. im. Timiryazeva), Issue 9, 1949, p. 145-51

SO: U-5240, 17, Dec. 53, (Letopis 'Zhurnal 'nykh Statey, No. 25, 1949).

VOLOKHOV, M.I., kand.tekhn.nauk; REVYAKINA, L.S.

Study of the accuracy of modern methods of dust control in the mine atmosphere. Bor'ba s sil. 3:153-163 '59. (MIRA 12:9)
(MINE DUSTS) (AIR--ANALYSIS)

KAPLAN, B.Ya.; REVYAKINA, G.N.

Oxidizing-alkaline solution of niobium, tantalum, and their alloys for the determination of their nitrogen content. Zav.lab. 29 no.12: 1427-1428 '63. (MIRA 17:1)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti.

VOLOKHOV, M.N.; REVYAKINA, L.S.

Effect of certain factors on results of dust sampling by the count method. Trudy Inst. gor. dela AN Kazakh. SSR 1:113-126 '56.
(Mine dusts) (MIRA 11:1)

KOZ'MIN, L.I.; REVYAKOV, V.P.; POKROVSKAYA, G.N.; TROFIMOV, I.A.; PANFILOV, R.A.

Increasing the durability of linings in low-frequency induction channel furnaces. TSvet. met. 38 no.8:81-83 Ag '65.
(MIRA 18:9)

REVYASHKO, S.K., Cand Tech Sci — (disc) "Permissible velocities in a washout for sandy and peaty soils of Poles'ye." Minsk, 1958. 14 pp (Min of Higher Education USSR. Belorussian Polytech Inst im I.V.Stalin), 100 copies (KL,24-58, 120)

REVYATSKAYA, A.P. [Reviats'ka, A.P.]

Use of paper chromatography for the identification of choline in Viscum album. Farmatsev.zhur. 20 no.6:27-30 '65.
(MIRA 19:1)

1. Kafedra tekhnologii lekarstv L'vovskogo meditsinskogo instituta (zavsduyushchiy kafedroy prof.V.T.Pozdnyakova).

[illegible], [illegible] ...

Preparations of vitamin E (mixtures of α-, β- and γ-tocopherols) from plants. Farmatsev. zhur. 17 no.5:44-47 '62. (MIRA [illegible])

1. Kafedra tekhnologii lekarstv L'vovskogo meditsinskogo instituta (zaveduyushchiy kafedroy - dotsent Yu.O.Karpenko).